

I Claim

1. A valve assembly adapted to be in fluid communication between a milking claw and a milk supply, said assembly having a longitudinal axis and a transverse axis, and said valve assembly comprising:
 - a valve section having a relief slot and the valve section comprising a housing section having a first milk passage, a second milk passage, and a cleaning fluid passage, the valve section further comprising a valve element comprising a first transverse side, a milk channel, a cleaning fluid channel,
 - an actuator portion arranged to reposition the valve element back and forth between a milking position to a cleaning position;

said assembly being arranged so that

 - i. when the valve assembly is in the milking position, the milk channel of the valve element is in communication between the first milk passage and the second milk passage, the relief slot is positioned between a least resistant fluid leakage area between the first milking passage and the cleaning fluid passage and relief slot is not in direct communication with either the cleaning fluid passage or the milking passage and
 - ii. when the valve assembly is in the cleaning position the valve element is positioned in a manner to so the cleaning channel provides communication between the cleaning fluid

passage, the first milking passage and the relief slot.

2. The claim as recited in claim 1 where the cleaning fluid passage is positioned between actuator portion and the first milk passage.
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3. The claim as recited in claim 2 where the mass of the actuator maintains the first of passage to be positioned above the cleaning passage.
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4. The claim as recited in claim 1 where the relief slot comprises lateral end portions that are in communication to the surrounding atmosphere.
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5. The claim as recited in claim 1 where the relief slot is located on the housing section.
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6. The claim as recited in claim 1 where the relief slot is located on the valve element.
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7. The method as recited in claim 6 where the longitudinal distance between the relief slot and the milk channel is defined as d_{ii} and the longitudinal distance of the first milk conduit is defined as d_{cc} where d_{ii} is a greater distance than d_{cc} .
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8. The claim as recited in claim 1 where the first milk passage and the second milk passage are located on opposite sides of the valve element substantially aligned along the transverse axis.
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9. The claim as recited in claim 1 where when the valve assembly is in the cleaning position, cleaning fluid passes laterally through the relief slot and exits to atmospheric.
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10. The claim as recited in claim 9 where the relief slot is located on the housing section.
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11. The claim as recited in claim 9 where the relief slot is located on the valve element.
12. The method as recited in claim 11 where the longitudinal distance between the relief slot and the milk channel is defined as d_{ii} and the longitudinal distance of the first milk conduit is defined as d_{cc} where d_{ii} is a greater distance than d_{cc} .
13. The claim as recited in claim 1 where said housing section comprises a housing which defines the first milk passage, the second milk passage and the cleaning fluid passage.
14. The claim as recited in claim 13 where the housing section is comprised of two plate-like members where one plate-like member forms the first milking passage and the other plate-like member forms the second milking passage.
15. The claim as recited in claim 14 where the valve element is interposed between the two plate-like members and the plate-like members are connected by fastening members to provide quick disassembly.
16. The claim as recited in claim 15 where the housing can be disassembled by hand without the use of tools.
17. The claim as recited in claim 14 where the valve element is adapted to reposition in the longitudinal direction from the milking position and the cleaning position.
18. The claim as recited in claim 14 where said actuator comprises a housing portion that is attached to the housing of the valve portion by quick release pins.
19. A valve assembly adapted to be in fluid communication between a milking claw and a milk supply, said valve assembly having a longitudinal axis, and said valve assembly comprising:

- a valve section having a relief slot and the valve
section comprising a housing section having a first
milk passage, a second milk passage, and a cleaning
fluid passage, the valve section further comprising a
5 valve element comprising a first transverse side, a
milk channel, a cleaning fluid channel,
an actuator portion arranged to reposition the valve
element between a milking position where the milk
channel of the valve element is in communication
10 between the first milk passage and the second milk
passage and the relief slot is positioned between a
least resistant fluid leakage area between the first
milking passage and the cleaning fluid passage and
relief slot is not in direct communication with either the
15 cleaning fluid passage or the milking passage; and the
actuator portion is further adapted to position the
valve element to a cleaning position so the cleaning
channel provides communication between the
cleaning fluid passage, the first milking passage and
20 the relief slot whereby the relief slot is flushed with
cleaning fluid.
20. The claim as recited in claim 19 where the cleaning fluid
passage is positioned between actuator portion and the first
milk passage.
- 25 21. The claim as recited in claim 20 where the mass of the actuator
maintains the first of passage to be positioned above the
cleaning passage.
22. The claim as recited in claim 19 where the relief slot is located
on the housing section.

23. The claim as recited in claim 19 where the relief slot is located on the valve element.
24. The method as recited in claim 23 where the longitudinal distance between the relief slot and the milk channel is defined as d_{ij} and the longitudinal distance of the first milk conduit is defined as d_{cc} where d_{ij} is a greater distance than d_{cc} .
- 5 25. The claim as recited in claim 1 where when the valve assembly is in the cleaning position, cleaning fluid passes through the relief slot and exits to atmospheric.
- 10 26. The claim as recited in claim 19 where said housing section comprises a housing which defines the first milk passage, the second milk passage and the cleaning fluid passage.
27. The claim as recited in claim 26 where the housing section is comprised of two plate-like members where one plate-like member forms the first milking passage and the other plate-like member forms the second milking passage.
- 15 28. The claim as recited in claim 27 where the valve element is interposed between the two plate-like members and the plate-like members are connected by fastening members to provide quick disassembly.
- 20 29. The claim as recited in claim 28 where the housing can be disassembled by hand without the use of tools.
30. The claim as recited in claim 27 where the valve element is adapted to reposition in the longitudinal direction from the milking position and the cleaning position.
- 25 31. The claim as recited in claim 27 where said actuator comprises a housing portion that is attached to the housing of the valve portion by quick release pins.

32. A method of cleaning the udder of a cow attached to a claw by employing a valve assembly adapted to be in fluid communication between a milking claw and a milk supply, said assembly having a longitudinal axis and a transverse axis, and

5 said valve assembly comprising:

 providing a milk supply under negative gauge pressure and providing communication of the milk supply to a second milk passage of the valve assembly,

10 providing communication between the claw attached to the udder of a cow to a first milk passage

 positioning a valve element of the valve assembly so a milk channel of the valve element allows the first milk passage to be in communication with the second milk passage, and further providing a relief slot between the first milk passage and a cleaning fluid passage of the valve assembly where the relief slot is not in communication with the cleaning fluid passage

15 repositioning the valve element so a cleaning fluid channel of the valve element provides communication between the cleaning fluid passage and the first milk passage and the second milk passage is cut off from communication with the first milk passage and the relief slot is in communication with the cleaning fluid

20 channel whereby cleaning fluid is directed to the first milk passage to clean the udder of the cow.

25 33. The claim as recited in claim 32 where the relief slot is located on the valve element.

34. The method as recited in claim 33 where the longitudinal distance between the relief slot and the milk channel is defined as d_{ii} and the longitudinal distance of the first milk conduit is defined as d_{cc} where d_{ii} is a greater distance than d_{cc} .
- 5 35. The method as recited in claim 32 where the housing section is comprised of two plate-like members where one plate-like member forms the first milking passage and the other plate-like member forms the second milking passage.
- 10 36. The method as recited in claim 35 where the valve element is interposed between the two plate-like members and the plate-like members are connected by fastening members to provide quick disassembly.
37. The claim as recited in claim 36 where the housing can be disassembled by hand without the use of tools.
- 15 38. The claim as recited in claim 32 where the valve element is adapted to reposition in a longitudinal direction from the milking position and the cleaning position.
39. The claim as recited in claim 35 where said actuator comprises a housing portion that is attached to the housing of the valve portion by quick release pins.
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